

Applicant : John Peterson
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Attorney's Docket No.: 07844-485001 / P449

REMARKS

Claims 1-30 are pending in the application. Claims 1, 15-16, and 30 have been amended. No new matter has been added. Reconsideration of the action mailed June 18, 2004, is respectfully requested in light of the foregoing amendments and the following remarks.

The Examiner rejected claims 1-30 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,643,413 to Shum et al. ("Shum") in view of "Fundamentals of Texture Mapping and Image Warping" to Heckbert ("Heckbert").

Section 103(a) Rejections

Claim 1 stands rejected as unpatentable over Shum in view of Heckbert. Claim 1, as amended, is directed to a method for shifting perspective in a composite image. A plurality of component images including a first image and a second image are used to form a composite image. The composite image includes a first image and a modified second image where the first image is the center of projection for the composite image and the modified second image has been corrected for perspective distortion with respect to the first image. A new composite image is generated changing the center of projection for the composite image from the first image to the modified second image. The plurality of component images in the first composite image are transformed into a plurality of transformed images that have the second image as their center of projection (i.e., the plurality of component images have been transformed to correct for perspective distortion with respect to the second image). Claim 1 recites "applying the transform to each of the plurality of derived component images in the composite image to generate a plurality of transformed component images, each of the transformed component images having the second image as their center of projection."

Shum does not disclose or suggest applying a transform to each image in a composite image to change a composite image having a first center of projection to a composite image having a second center of projection. The Examiner states that Shum discloses the claimed transform at col. 1, lines 40-42; col. 8 lines 8-9; col. 9, lines 49-51; and col. 13, lines 41-44. Applicant respectfully disagrees.

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The cited sections of Shum describe local warping of one of a set of manifold mosaics in order to render an image of a view. For example, col. 9, lines 49-52 read, in pertinent part, as follows:

For example, a novel view image can be warped using the local rays captured on a single concentric mosaic, rather than interpolated by collecting rays captured from many concentric mosaics.

While col. 13, lines 41-45 read, in pertinent part, as follows:

A new image at the new position of the virtual camera is rendered, by locally warping a mosaic represented by the new position of the camera, without view interpolation of a number of mosaics.

In the cited sections, Shum describes a method for rendering an image from a specific position on a manifold mosaic without interpolation of multiple mosaics. A virtual camera is positioned within a set of manifold mosaics and an image can be rendered based on that camera position. The virtual camera can be positioned, for example, at any point around a particular concentric mosaic. Rendering an image includes locally warping the mosaic represented by the position of the virtual camera. Shum, however, does not transform a composite image that has been corrected for perspective distortion about a first center of projection to create a second composite image corrected for perspective distortion about a different center of projection. Consequently, Shum does not disclose or suggest claim 1.

The Examiner does not contend, and the Applicant agrees, that Heckbert does not disclose or suggest applying the transform to each of the plurality of derived component images in the composite image to generate a plurality of transformed component images, each of the transformed component images having the second image as their center of projection. Heckbert describes techniques for mapping an image, but does not disclose or suggest transforming each image in a composite image having a first center of projection into a second composite image having a different center of projection. Applicant respectfully submits that claim 1, as well as claims 2-14, which depend from claim 1, are in condition for allowance.

Claim 15 stands rejected as unpatentable over Shum in view of Heckbert. Claim 15 recites "applying the transform to each of the plurality of derived component images in the

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composite image to generate a plurality of transformed component images, each of the transformed component images having the second image as their center of projection, each of the transformed component images being corrected for perspective distortion relative to the second image." Neither Shum nor Heckbert disclose or suggest a transform for transforming the images of the first composite image having a first center of projection into a second composite image having a second center of projection. For at least the same reasons as set forth with respect to claim 1, claim 15 is in condition for allowance.

Claim 16 stands rejected as unpatentable over Shum in view of Heckbert. Claim 16, as amended, is directed to a computer program product for shifting perspective in a composite image and recites instructions to "apply the transform to each of the plurality of derived component images in the composite image to generate a plurality of transformed component images, each of the transformed component images having the second image as their center of projection." For at least the same reasons set forth with respect to claim 1 claim 16, as well as claims 17-29, which depend from claim 16, are in condition for allowance.

Claim 30 stands rejected as unpatentable over Shum in view of Heckbert. Claim 30 is directed to a computer program product that recites instructions to "apply the transform to each of the plurality of derived component images in the composite image to generate a plurality of transformed component images, each of the transformed component images having the second image as their center of projection." For at least the same reasons as set forth with respect to claim 15, claim 30 is in condition for allowance.

Applicant respectfully requests that all pending claims be allowed.

Pursuant to 37 CFR §1.136, applicant hereby petitions that the period for response to the action dated June 18, 2004, be extended for one month to and including October 18, 2004.


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Please apply the extension of time fee of \$110 for a one month extension and any other charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

Date: 18 October, 2004


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